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ABSTRACT

The purpose of this study was to test an informational vs. a dispositional hypothesis in predicting how children resolve instances of attributional conflict. Sixty-four sixth grade boys served as subjects after scoring in the upper and lower quartile of the Intellectual Achievement Responsibility Scale (IAR). Each child performed two separate tasks in an individual setting. Each task contained a set of four puzzles. Children were asked to "explain" their outcome by attributing their performance to four causal factors: ability, effort, luck, and task. The findings indicated that attributional behavior in achievement settings could not be predicted entirely from informational cues or dispositional biases along. When confronted with consistency information or outcome information across trials in actual performance settings, the high and low motive groups did not act according to a simple predictable dispositional bias. A revision of the overall model was suggested, as well as suggestions for future research. (Author/PC)

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A child's beliefs about the causes of his/her behavior are influenced by environmental factors as well as certain personality predispositions. In achievement-related contexts, these informational cues (e.g., performance outcome, consistency of performance over time or trials, consistency with social norms) and dispositional biases (e.g., achievement needs, self-esteem) are likely to lead to conflicting inferences about the causes of the achievement outcome (Weiner, 1974). How then are these opposing attributional tendencies integrated? Which sources of influence are more salient in resolving attributional conflicts? The present study focused on these questions by testing an informational vs. a dispositional hypothesis within the same design.

Recently Weiner, Frieze, Kukla, Reed, Rest and Rosenbaum (1971) proposed that individuals use four elements to explain the causes of an achievement related event: ability, effort, task difficulty, and luck. The first two components of the model (ability and effort) describe internal characteristics of the person, while the latter two components

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(task difficulty and luck) describe states external to the individual. In addition, ability and task refer to relatively stable or enduring factors, while effort and luck are relatively unstable or variable. Thus, the four factors in this causal model represent two basic dimensions: locus of control (internal or external) and degree of stability (stable or variable).

Frieze and Weiner (1971) have shown that the informational cues in an achievement setting influence which causal elements are inferred for a performance outcome. Among other cues, outcome information (success or failure) and the person's prior experience with the task (consistency of performance) were used by subjects to infer the causes of an hypothetical event. Consistency of performance across trials resulted in attributions to ability and task (stable factors); and inconsistency led to greater effort and luck (variable factors) attributions. Immediate outcome was related to the internal-external dimension with success ascribed to ability and effort and failure to task difficulty and luck. Because of the complexity of the design, they did not interpret the interaction effects. Several studies have found some supporting evidence for their findings (Feather & Simon, 1971; Mc Mahan, 1973; Weiner et al., 1971).

Based upon an attributional analysis of the achievement motive paradigm, Weiner and Kukla (1970) derived a set of

expected relationships between achievement motivation and attributional behavior. They suggested that persons high in achievement needs perceive themselves as more able and ascribe success experiences to high ability. Generally, high motive persons employ an effort-outcome covariation principle in attributing causation. In contrast, low achievement need persons ascribe failure outcomes to their own lack of ability, and success is attributed to external factors, implying a denial of personal responsibility. Thus high and low achievement motive groups differ with respect to the locus of control dimension for success outcomes and differ in ability (low group) vs. effort (high group) causal attributions for failure outcomes (see also Kukla, 1972; Weiner, 1974; Weiner, Heckhausen, Meyer, & Cook, 1972; Weiner & Potepan, 1970).

Thus, while research on attributional behavior has clearly demonstrated that informational or stimulus factors and dispositional traits bias the inferred causes of achievement events, opposing hypotheses must be tested in order to begin to formulate models that show how opposing attributional tendencies are resolved (Weiner, 1974, pp. 193-194). Within the present study, attributional conflict was generated by having high and low achievement motive children experience success or failure at a task on which they have previously experienced a similar or dissimilar outcome. Based upon the information utilization hypothesis, the immediate outcome should bias causal attributions across the locus of control

dimension, but the consistency of performance cue should influence attributions across the stability dimension. On the other hand, using the dispositional hypothesis, one's level of achievement motivation should affect causal ascriptions across the locus of control dimension for success outcomes, but across the stability dimension for failure outcomes. Thus, attributional conflict is experienced by high and low need achievers when certain informational cues become salient in an achievement context. The purpose of the study was to test an informational vs. a dispositional hypothesis in predicting how children resolve instances of attributional conflict.

Method

Design

A 2^3 factorial design was used with two levels of each factor: achievement motive (high & low), consistency of performance (consistent and inconsistent), and immediate performance outcome (success & failure). Subjects were randomly assigned to consistency and outcome conditions, controlling for level of achievement motive. Subjects were also randomly assigned to two female experimenters, experimenters remained blind as to achievement motive level of the child.

Measure of Achievement Motivation

A measure of achievement need was derived from the Intellectual Achievement Responsibility (IAR) scale (Crandall, Katkovsky & Crandall, 1965).[1] The IAR contains 34 forced-

choice items, depicting an equal number of positive and negative achievement-related outcomes from which subscores can be obtained for beliefs in internal responsibility for success outcomes (I^+ score) and for failure outcomes (I^- score).

The I^+ score from the IAR was selected to represent level of achievement motivation after considering a series of studies by Weiner and Kukla (1970) which were designed to assess the relationship between resultant achievement motivation and internal ascriptions for success and failure experiences. Results from these studies led Weiner and Kukla to conclude that high and low achievement motivated persons differ in internal vs. external attributions for success outcomes only. In failure situations, high and low groups do not differ in degree of internal attribution, but instead differ in preferred patterns (effort vs. ability) of attributed causality. Subsequent studies by Kukla, 1972; Weiner, et al., 1971; and Weiner, Heckhausen, Meyer and Cook, 1972, support their findings. With respect to the IAR, high and low achievement motive persons should only differ in I^+ scores, with high achievement need persons making more internal ascriptions for success outcomes than persons low in achievement needs.

Subjects & Task

One hundred and thirty sixth grade boys from three Indiana county schools were administered the IAR and the 64 boys scoring in the upper quartile (n = 32) and lower quartile (n = 32) on I^+ items served as subjects. Three children had

to be replaced because they were unable to perform the task. (These children belonged to different experimental conditions.)

Subjects attempted to solve sets of achievement-related puzzles (see Feather, 1961). Each puzzle involved a line diagram approximately 1.5 inches square. The child's task was to trace over all the lines in the puzzle without lifting his pencil and without tracing over any line twice. Diagrams were equated for perceived difficulty by equalizing the number of lines on the puzzles. Soluble and insoluble forms of the puzzles were constructed which were complex enough so that subjects assumed all were soluble.

Procedure

Each child performed two separate tasks in an individual setting. Each task contained a set of four puzzles. A task involving success outcome was defined as a set of four soluble puzzles; a task with a failure outcome included one soluble and three insoluble puzzles (outcome manipulation). After each task the child was asked to verbalize the number of puzzles he solved correctly. Each child was allowed a maximum of five minutes to complete each task of four puzzles. When the first and second tasks were similar, involving the same outcome (both success or both failure), the performance was consistent. If the tasks were different, involving opposite outcomes (one success and one failure), the performance was inconsistent (consistency of performance manipulation). The second task, alone, constituted the immediate

performance outcome manipulation. After completion of both tasks, the child was administered the dependent measures.

As part of debriefing, children in the failure outcome conditions were asked to try another set of puzzles (all soluble) after the dependent measures had been administered. After the child solved the puzzles, the experimenter indicated that this particular set of puzzles had been very difficult for most children and that he had done well in solving them.

Dependent Measures

Children were asked to "explain" their outcome by attributing their performance to four causal factors: ability, effort, luck and task. Each child was presented with four cups (each cup representing a causal factor) and asked to take from one to nine poker chips from each cup according to how the factor contributed to his performance. This technique has been used and reported elsewhere by Friend and Neale (1972). Subjects were given instructions as follows:

> Look at this cup which has nine chips. I want you to tell me how skillful you think you were in solving these puzzles by taking chips out of the cup.
> If you think you were very skillful, you can take either seven, eight, or nine chips.
> If you think you were skillful, take four, five, or six chips.
> If you think you were not skillful, take one, two, or three chips.
> Go ahead now and take the chips out of the cup.

Similar instructions were given for the remaining cups, representing effort, luck and task difficulty. To help the child, an abbreviated form of the scale was presented on an

index card and placed beside the cup. The cups were presented one at a time and the order was randomized across subjects.

Results

Appropriateness of I^+ classification

An initial comparison was made between subjects' scores on the I^+ subscale and scores on the Children's Manifest Anxiety Scale (CMAS)(Castenda, McCandless, & Palermo, 1956) and Piers Harris self concept measure (Piers & Harris, 1964). Tests between the means on each measure were computed for subjects classified as high or low in achievement motivation from the I^+ score. Providing support for the use of the I^+ score as an indicator of achievement motive, subjects classified as high in achievement motive attained significantly lower anxiety scores, $t(62) = 2.92$, $p < .01$, but higher self concept scores, $t(62) = 3.95$, $p < .01$, than those classified low in achievement needs.

Data Analysis

Separate 2 (achievement motive) x 2 (consistency of performance) x 2 (immediate outcome) analyses of variance were computed for each dependent variable. In addition to ratings on each causal element--ability, effort, task ease and luck, measures of the locus of control and stability dimensions were also employed. Data were combined to form indices of internality (combined ratings of internal factors minus combined ratings of external factors) and stability (stable minus

variable factors).[2] The internality and stability measures were converted to a positive scale having a potential range of 1 to 33 with 17 at the midpoint. Scores above 17 indicate higher ratings of internal, than external factors or higher ratings of stable, than variable factors on the respective scale. Table 1 presents the ANOVA summary and Table 2, the cell means for each dependent measure.

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Inspection of Table 1 reveals that significant effects were primarily associated with the consistency and outcome experimental manipulations. Subjects' ratings of effort, task and luck were a function of the consistency of the performance (see Table 1). Attributions of expended effort and luck were higher for inconsistent, than consistent performances. In contrast, the task was rated easier when the performances were consistent over trials (see Table 2). Consequently, the difference in attribution between consistent and inconsistent performances was highly significant on the stability dimension with greater attribution of stable factors for consistent ($\underline{M}$ = 19.94), than inconsistent ($\underline{M}$ = 17.44) performances.

As a main effect, immediate outcome was highly related to ratings of ability and task. Success outcomes, more than failure, involved higher ratings of one's ability and the task

ease. Attribution to the stable factors, however, was significantly greater for success ($\underline{M}$ = 19.81), than failure ($\underline{M}$ = 17.56) outcomes. In other words, ability and task characteristics were used to explain success more than failure. Internality of attribution was also affected by the outcome experienced. External factors (task and luck) were perceived as more related to one's performance by failing subjects ($\underline{M}$ = 15.50), than successful subjects ($\underline{M}$ = 17.25).

The above main effects must be interpreted within the significant consistency x outcome interaction findings on ability, task and the stability dimension. When the performance was consistent over trials, subjects rated their ability higher under success than failure outcomes, simple main effect, $F(1,56) = 26.13$, $\underline{p} < .01$. Ratings of ability in the inconsistent performance conditions did not differ for success and failure outcomes, simple main effect, $F < 1$. Similar patterns of results were found on ratings of task ease and the stability dimension. For consistent performances, the task was rated easier for success than failure, simple main effect, $\underline{F}(1,56) = 38.16$, $\underline{p} < .01$, and stable factors received greater attribution for success, than failure outcomes, simple main effect, $\underline{F}(1,56) = 15.94$, $\underline{p} < .01$. In the inconsistent conditions, task and stability ratings did not differ across outcomes. Thus, subjects' differential attributions for success and failure outcomes are primarily accounted for by differences occurring within the consistent performance condition.

There was one significant effect involving the achievement motivation level of the subject. Ratings of luck were a function of achievement motive level and immediate outcome. Subjects low in achievement motivation rated luck higher under success than failure, simple main effect, $F(1,56) = 7.12$, $p < .025$, indicating that success is attributed to good luck and failure to bad luck. High achievement motivated subjects did not rate luck differently as a function of outcome. Thus, the luck factor is used more often by the low motive group to explain their performance.

Of particular interest, however, is a marginal three factor interaction occurring on the internality index, $F = 3.04$, $p < .10$. Given an immediate success outcome, subjects high and low in need achievement differentially rate internal vs. external factors as a function of the consistency of the outcome, simple interaction effect, $F(1,56) = 5.03$, $p < .05$. While high need achievers ascribe consistent and inconsistent outcomes similarly (Ms = 17.88 and 17.62, respectively); low achievement need subjects ascribe consistent success outcomes more externally ($M = 14.38$), but inconsistent success outcomes more internally ($M = 19.12$). Inspecting other cell means, the major difference in locus of ascription between consistent and inconsistent success performances by low need achievers appeared to occur within the effort ratings. Low achievement need persons rated effort higher for inconsistent ($M = 6.38$), than consistent ($M = 3.38$) success outcomes which would seem

to account for their greater internality for inconsistent outcomes. Under failure outcomes, high and low achievement motive subjects did not differ in internal causal ascription for inconsistent or consistent outcomes. Failure outcomes were attributed externally in all conditions.

Discussion

The results of the present study provide rather clear support for an information utilization hypothesis, rather than a dispositional hypothesis derived from the achievement motive paradigm. The informational cues of outcome and consistency showed strong main and interaction effects on several of the attributional ratings. In contrast, there was only one statistically significant effect involving achievement motivation. It thus appears that in resolving experiences of attributional conflict, subjects tended to make attributional choices consistent with a more informationally-oriented interpretation.

Since the present study employed an actual performance situation involving children, it provided rather strong support for the Frieze and Weiner (1971) study which used only a paper and pencil task. As expected, consistent performance outcomes resulted in greater ascription to stable factors (ability and task), while inconsistent performances were attributed to the more variable factors (effort and luck). Additionally, immediate outcome was moderately related to

the locus of control dimension in that failure outcomes, more than success, were attributed to external factors (task and luck).

The Weiner et al. model (1971), the Frieze and Weiner findings, and the main effects of the present study all suggest that consistency of one's performance affects attributions across the stability dimension, while outcome cues bias attributions across the locus of control dimension. Because both outcome and consistency informational cues were available to the subjects in this experimental setting, conflicting attributional tendencies (stability vs. locus) were generated between these two cues. The appropriate tests to determine how this source of conflict was resolved were the consistency x outcome interactions. The significant interactions showed that repeated success outcomes were explained by high ability and easy task and repeated failures by low ability and difficult task, but successes and failures were not differentially explained in the inconsistent performance conditions. It appears that an inconsistent performance may suppress the anticipated biasing effects of immediate success or failure outcomes. Thus, in resolving the attributional conflict between consistency and outcome cues, the consistency information may be more salient than immediate outcome information, at least for this type of performance setting (i.e., highly contiguous tasks with similar performance requirements). In addition, the finding that attributions for consistent success

and failure performances varied primarily on the stability dimension, not the locus of control dimension, supports Mc Mahan (1973) who has suggested that it is the stability dimension that is more salient in achievement settings.

The major source of hypothesized attributional conflict in this study was between the dispositional biases vs. the biases elicited from the informational cues. Little support was found for Weiner and Kukla's (1970) model of attributional behavior as a function of level of achievement motivation. The only significant effect involving achievement motivation was that low achievement need persons ascribed success and failure outcomes to good and bad luck, respectively, more than high need persons. The tendency for low motive persons to assign success externally is consistent with Weiner and Kukla, but their ascribing failure externally to bad luck, rather than internally to ability, contradicts the model.

Further insight into how persons resolve attributional conflicts can be obtained by examining the marginal higher order interaction on the internality index. Given success outcomes, high need achievers did not differentially attribute consistent and inconsistent performances; whereas, low need achievers ascribed consistent success outcomes externally, but inconsistent outcomes(a failure followed by a success) internally. No attributional differences between motive groups occurred under failure conditions. It appears that the major difference between high and low achievement motive

persons may be in how they attribute success, not failure, outcomes. Also suggested by this interaction is the possibility that certain informational conditions can reverse the tendency of low need achievers to deny personal responsibility for success experiences.

In summary, the present findings indicate that attributional behavior in achievement settings cannot be predicted entirely from informational cues or dispositional biases alone. It is apparent that the Weiner and Kukla and Weiner et al. paradigms have been based on assumptions about how high and low achievement need persons explain single-trial performance outcomes. When confronted with consistency information or outcome information across trials in actual performance settings, the high and low motive groups do not act according to a simple predictable dispositional bias. Since many informational cues (e.g., consistency, expectancies for success, consensus data) are typically available to a person in most achievement settings, the attributional model of achievement motivation should be revised to account for how more complex informational structures are synthesized in making attributions. Future studies should focus on how and if high and low achievement need persons differentially integrate other sets of informational cues in attributing causality for achievement outcomes.

Footnotes

[1]Reliability coefficients for the I^+ scale have been reported by Crandall, et al. (1965), Stanwyck (1972) and Felker (1975). Crandall reported $\underline{r}$ = .66 test-retest ($\underline{n}$ = 47) and $\underline{r}$ = .54 internal consistency ($\underline{n}$ = 130) coefficients for children in grades 3-5. Stanwyck reported KR_{20} = .79 for 25 sixth grade children. Felker found $\underline{r}$ = .62 retest reliability for 1140 children in grades 3-6.

[2]Calculations of internality vs. externality are dependent upon the task outcome. For example, under success conditions, higher ratings of internal factors (ability and effort), than external factors (task ease and luck) suggest internality of causal source. In contrast, when the outcome is failure, the lower the ratings of ability and effort, the more internality of causal ascription. Thus the derived scale values were inverted for failure outcome conditions so that internality reflects lower ratings of internal, than external factors. The same procedure was followed for calculations of stability for failure in that the lower the ratings of ability and task ease the greater the ascription to stable factors.

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Table 1

Analysis of Variance Summary[a]

Source of Variance	F Values					
	Ability	Effort	Task Ease	Luck	Internality	Stability
Nach (A)	<1	<1	<1	<1	<1	2.73
Consistency (B)	<1	4.48*	4.23*	4.05*	3.04	7.59**
Outcome (C)	18.00***	<1	26.42***	1.58	4.93*	6.15*
A x B	<1	<1	<1	2.28	2.04	<1
A x C	<1	<1	2.94	6.33*	<1	<1
B x C	8.91**	1.38	12.94***	1.58	1.23	10.04**
A x B x C	1.21	2.71	<1	<1	3.04	<1

[a]Degrees of freedom for all terms are 1/56

*$p < .05$, **$p < .01$, ***$p < .001$

Table 2

Mean Attribution Ratings in the Consistency x Outcome Conditions for Subjects Classified High and Low in Achievement Motive

	Ability		Effort		Task		Luck		Internality		Stability	
Condition	High[a]	Low	High	Low	High	Low	High	Low	High	Low	High	Low
Consistent - S	6.25[b]	6.00	5.12	3.38	7.62	7.25	2.88	4.75	17.88	14.38	22.88	22.12
Consistent - F	3.25	3.25	5.25	5.38	3.75	4.75	2.75	2.38	15.00	15.50	18.00	16.75
Inconsistent - S	4.38	5.50	5.62	6.38	5.50	5.25	3.88	4.50	17.62	19.12	17.38	16.88
Inconsistent - F	4.62	4.25	6.25	5.38	4.38	5.25	5.25	3.12	15.75	15.75	19.50	16.00

Note. The higher the mean, the higher the ability ratings and the effort ratings, the easier the task, the better one's luck, the greater the internal ascription and the greater the ascription to stable factors.

[a] High and Low I^+ classification

[b] $n = 8$ for each cell